

(faculty stamp)

COURSE DESCRIPTION

Z1-PU7

WYDANIE N1

Strona 1 z 2

1. Course title: EVIRONMNETAL IMPACT ANALYSIS		2. Course code		
3. Validity of course description: 2012/2013				
4. Level of studies: BA, BSc programme / MA, MSc programme lub 1st cycle / 2nd cycle of higher education				
5. Mode of studies: intramural studies / extramural studies				
6. Field of study: POWER ENGINEERING		(FACULTY SYMBOL) RIE		
7. Profile of studies: academic				
8. Programme: Sustainable energy engineering				
9. Semester: 6				
10. Faculty teaching the course: Chair of Technologies and Installations for Waste Management				
11. Course instructor: dr hab. inż. Krzysztof Pikoń				
12. Course classification: speciality course				
13. Course status: compulsory / elective				
14. Language of instruction: English				
15. Pre-requisite qualifications: -				
16. Course objectives:				
Education in the field of environmental protection:				
<ul style="list-style-type: none"> • Foundings of LCA (Life cycle concept, LCT life cycle thinking, LCA life cycle analysis, LCIA life cycle environmental impact analysis) • CBA (Cost Benefit Analysis) in environmental engineering; • Types of environmental impact • Sustainability notion definition; • Best available technique. 				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	knows methods of measuring the size of the energy	test	lecture	K_W14
2.	knows the rules and environmental technologies related to energy processes	test	project	K_W15
3.	knows the basic energy technologies of conventional, nuclear and renewable energy sources and understand the principles of their design and operation	test	lecture	K_W18
4.	able to calculate the emissions of harmful substances into the environment from power plants	report	project	K_U20
5.	can determine the value of cumulative energy and natural resources for the complete process lines	report	project	K_U21
6.	Is able to assess and resolve fundamental problems in the field of power engineering specialties	test	lecture	K_U27
7.	understands the issues related to the specialty of study	Test / report	Lecture/project	K_U28
8.	Is aware of the importance and understanding of the effects of non-technical aspects and engineering activities, including its impact on the environment, and consequently the responsibility for decisions	report	project	K_K02

18. Teaching modes and hours

Lecture / 30 BA/MA Seminar / Class / Project / 15 Laboratory

19. Syllabus description:

Course is dedicated to the Life Cycle Assessment. During the lectures issues related to environmental impact of various process is discussed. Those processes comprise production, use and disposal of products. The methodology of environmental burden assessment as well as energy and environmental analysis in the full life cycle of products is given. The practical applications of LCA studies are presented. During the course, students will do a project with the following thematic scope:

- The CBA, CEA and LCA.
- Environmental impact of waste to energy systems.
- Ecological and economic aspects of energy production.

20. Examination: YES**21. Primary sources:**

- Jan Górzynski, Podstawy analizy środowiskowej wyrobów i obiektów, WNT 2007
- Witold M. Lewandowski, Proekologiczne odnawialne źródła energii, WNT 2008
- Małgorzata Góralczyk, Zygmunt, Joanna Kulczycka, Ekologiczna ocena cyklu życia procesów wytwórczych LCA, PWN 2007

22. Secondary sources:

- Guy Garrod Economic Valuation of the Environment, Methods and Case Studies, EE Publishing 1999,
- Hanley N., Splash C.L., Cost Benefit Analysis and the Environment – EE Publishing 1993

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/15
2	Classes	/
3	Laboratory	/
4	Project	15/30
5	BA/ MA Seminar	/
6	Other	/
	Total number of hours	/

24. Total hours: 90**25. Number of ECTS credits: 3****26. Number of ECTS credits allocated for contact hours: 1,5****27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 1,5****26. Comments:**

Approved:

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(date, Instructor's signature)

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(date, the Director of the Faculty Unit signature)